Applicants thank the Examiner for indicating that claims 42, 45-48, and 51-55 would be allowable if rewritten in independent form, including the limitations of claim 32 and any intervening claims.

Applicants also thank the Examiner for withdrawing the rejection over WO 97/19998 to Aaslyng *et al.* in view of U.S. Patent No. 5,769,903 to Audousset *et al.*

II. REJECTION UNDER 35 U.S.C. §103(a)

In the Office Action, the Examiner newly rejects claims 32-36, 38-41, 43-44, 49-50, and 56-69 under §103(a) over WO 97/19998 to Aaslyng *et al.* ("Aaslyng") in view of U.S. Patent No. 5,989,295 to de la Mettrie *et al.* ("de la Mettrie"). Applicants respectfully traverse the rejection.

To establish a *prima facie* case of obviousness, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify or combine reference teachings. Moreover, there must be a reasonable expectation of success in making the proposed modification. M.P.E.P. § 2143 (8th ed. 2001). Additionally, the evidence of a teaching, suggestion, or motivation to combine must be "clear and particular." *In re Dembiczak*, 175 F.3d 994, 999 (Fed. Cir. 1999). Applicants respectfully submit that the Examiner has not established the requisite motivation needed to modify the composition of Aaslyng to include the heterocyclic couplers of de la Mettrie with a reasonable expectation of success.

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A. The Examiner Has Failed To Establish The Requisite Motivation Needed To Add de la Mettrie's Heterocyclic Coupler To Aaslyng's Composition

The Examiner relies on Aaslyng for its teaching of hair dye compositions comprising laccase enzymes, aromatic dye precursors, couplers, and "heterocyclic bases such as 2,6-diaminopyridine (see page 6, line 35)." (Office Action, p. 2.) In particular, Aaslyng teaches a permanent dyeing composition for keratinous fibers comprising an oxidation enzyme comprising one or more oxidation enzymes derived from a strain of the genus *Scytalidium*, one or more dye precursors, and **optionally** one or more modifiers. (Page 3, lines 21-27, emphasis added.) The oxidation enzyme is a laccase. (Page 4, lines 30-31.) The oxidation dye precursor may be an aromatic compound belonging to diamines, aminophenols, and phenols. (Page 6, lines 19-22.) As the Examiner is aware, diamines, aminophenols, and phenols are not heterocyclic oxidation dye precursors.

The Examiner states that "the reference teaches heterocyclic oxidation bases such as 2,6-diaminopyridine." (Office Action, p. 3, citing page 6, line 35.) However, this is not the nomenclature typically used in the art for these compounds. Rather, 2,6-diaminopyridine is more commonly known in the art as a coupler. (*See The Science of Hair Care*, Charles Zviak, ed., Marcel Dekker, Inc. New York (1986) p. 266.) One skilled in the art, when reading Aaslyng, would have known that 2,6-diaminopyridine is a monocyclic pyridine coupler, which is outside the scope of the claimed invention based on the proviso at the end of, *e.g.*, claim 32. In fact, the Examiner acknowledges that Aaslyng fails to teach the claimed heterocyclic couplers. (Office Action, p. 2-3.)

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Moreover, the Examiner has not pointed to any teaching or suggestion in Aaslyng of a heterocyclic oxidation base. Because Aaslyng does not teach or suggest the claimed at least one oxidation dye, Aaslyng does not provide any "clear and particular" teaching or suggestion to include either a heterocylic oxidation base or heterocyclic coupler in its composition as presently claimed.

The Examiner relies on the teachings of de la Mettrie to make up for these deficiencies in Aaslyng. De la Mettrie teaches a composition comprising "at least one oxidizing dye precursor, **optionally** one or more couplers and at least one anionic amphiphilic polymer . . . ." (Col. 1, lines 7-11, emphasis added.) Based on these disparate teachings, the Examiner concludes that it would have been obvious to incorporate the heterocyclic couplers of de la Mettrie into Aaslyng's composition. (Office Action, p. 3-4.) Applicants respectfully submit that one of ordinary skill in the art, having read de la Mettrie's disclosure, would hardly have been motivated to select, out of context, the presently claimed heterocyclic couplers. In particular, why would one skilled in the art do the following:

1. Decide to use a coupler, which is an optional ingredient in both references;

2. Decide that this coupler should be heterocyclic;

3. Take this coupler out of the non-enzymatic dyeing composition of de la Mettrie; and

4. Place this coupler in the enzymatic dyeing composition of Aaslyng.

The guidance to make these numerous choices is not found in de la Mettrie, or for that matter in Aaslyng.

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Moreover, the Examiner argues that the proposed modification of Aaslyng would have been obvious because "de la Mettrie [sic] clearly teaches the equivalence of heterocyclic couplers and benzenic couplers, which are both, used conventionally in oxidation dye compositions." (Office Action, p. 3.) Applicants respectfully submit that it is not necessarily true that all couplers function equivalently, or more importantly, produce equivalent results, in an oxidative dye composition with all other variables being the same. Moreover, once other variables, such as the oxidizing agent, are changed, one cannot assume that the couplers would function equivalently or give equivalent results. Listing several compounds as interchangeable for one purpose, *e.g.,* to modify color in a hydrogen peroxide-oxidized dyeing system, does not establish their equivalency for all purposes, *e.g.,* to improve certain properties, such as, for example, light fastness or color fastness, in dyeing systems not using hydrogen peroxide. *See In re Jezl,* 396 F.2d 1009, 1012 (C.C.P.A. 1968).

In an oxidative dye composition, a chemical reaction occurs between the oxidation base and the oxidizing agent which produces an intermediary product. The intermediary product then reacts with a coupler. Because this is a chemical reaction, the chemical structure of the coupler plays a role in the final outcome of the reaction. In an oxidative dye composition, the final outcome manifests in the color of the hair, and the properties of the oxidative dye composition (*e.g.*, light fastness, color fastness, selectivity, etc.) One of ordinary skill in the art would understand that, even if the reaction of each coupler with the same oxidizing agent follows a similar reaction scheme, the hair dyeing polymer resulting from the use of heterocyclic coupler and the polymer resulting from the use of a benzenic coupler may be different.

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Thus, although the Examiner argues that the listing of heterocyclic couplers and benzenic couplers at col. 8, lines 1-24, of de la Mettrie renders them "equivalent," they are only so in the broadest sense of the word, *i.e.,* they are both color modifiers for hair dyeing compositions. But this is not a sufficient basis for the substitution the Examiner proposes. To determine patentability one must consider the viewpoint of the person of ordinary skill in the art. Here, the person of ordinary skill in the hair dyeing art would know that these couplers would yield different color hair dye compositions. In particular, the ability of each coupler to react with the same oxidation base is different. Due to this difference, the resultant oxidative dye compositions do not always exhibit the same color or property, such as color resistance. For this reason, the knowledge that couplers are color modifiers is too broad to render obvious the specific selection choices needed, as discussed above, to arrive at the claimed invention.

Moreover, the person of ordinary skill in the art would not assume the interchangeability of couplers that the Examiner takes for granted because that person would understand that the resultant hair dye compositions would have different properties. However, the person of ordinary skill in the art would not know what the resultant properties would be, for better or worse, until the oxidative hair dye composition was made and the various properties were tested. For this reason, the Examiner's proposed substitution is merely an invitation to experiment, and at most renders the claimed invention "obvious to try," which is improper. M.P.E.P. § 2145.

Further, if one took the position of the Examiner to its logical extreme, one could substitute any coupler from de la Mettrie's list of optional additional optional couplers at

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col. 8, lines 1-24, into Aaslyng's composition. Such a result is clearly beyond the scope of obviousness as defined by the law.

Thus, the references provide no motivation to make the alleged modification as urged by the Examiner.

B. The Examiner Has Failed To Establish That A Reasonable Expectation Of Success Exists For The Proposed Modification

Moreover, the Examiner has failed to establish that a reasonable expectation of success exists in making the proposed modification. In particular, Aaslyng teaches that hydrogen peroxide is traditionally used as an oxidizing agent in dyeing compositions but that it is known to be damaging to the hair. (Aaslyng, page 2, lines 16-21.) In order to overcome the disadvantage created by the use of hydrogen peroxide, Aaslyng teaches using a laccase enzyme "to replace" hydrogen peroxide as an oxidizing agent in an oxidative dye composition. (*Id.* at lines 25-26.) As explained in Aaslyng at pages 5-6, laccases are multi-copper containing enzymes that catalyze the oxidation of phenols. The Enzyme Nomenclature source referred to at the top of page 6 of Aaslyng shows the reaction of a benzenediol (the systematic name for laccases) with oxygen resulting in a benzosemiquinone plus water. (Copy enclosed for the Examiner's convenience). Notably, no hydrogen peroxide is involved in the reaction. The laccase is merely a catalyst for the oxidation reaction. Thus, Aaslyng's laccase oxidizing system does not produce, and is not a source of, hydrogen peroxide.

A laccase enzyme is a different type of oxidizing agent than hydrogen peroxide. As evidenced by the teachings of Aaslyng, not only are they art-recognized as different types of oxidizing agents, their individual effects on keratin fibers, *i.e.*, the damaging

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effects on hydrogen peroxide on hair because of, among other things, the high pH required, are art-recognized as well. De la Mettrie does not teach or suggest that his couplers may be used with, and are therefore compatible with, laccase enzymes. Because their effects are different, the Examiner has failed to establish that one of ordinary skill in the art would have had a reasonable expectation of success in substituting a coupler used in a composition containing hydrogen peroxide with a coupler used in a composition containing a laccase enzyme.

C. The Examiner Has Failed To Establish The Requisite Motivation To Add de la Mettrie's Heterocyclic Base To Aaslyng's Composition

The Examiner further alleges that the incorporation of de la Mettrie's heterocyclic oxidation bases would have been obvious as well. Specifically, he states that:

> [I]t would have been obvious to modify the primary reference by incorporating the oxidation base of 2,4,5,6-tetraaminopyrimidine and 3,4-diaminopyrazole as taught by De la Mittre [sic] to make such a dyeing composition because the primary reference suggest[s] the use of heterocyclic oxidation bases in the dyeing composition and the secondary reference teaches [a] hair dyeing composition comprising heterocyclic oxidation thus, a person of ordinary skill in the art would expect such a composition to have similar properties to those claimed, absent unexpected results.

(Office Action, p. 3-4.) This allegation is simply incorrect.

De la Mettrie discloses a multitude of oxidation dye precursors that can be used in its compositions, a vast majority of which fall outside the scope of the present invention. (De la Mettrie, cols. 5-7.) In fact, this list contains five broad classes of dye precursors. Notably, at least four of these classes contain no ingredients which read on the at least one oxidation dye recited in the independent claims. This hardly provides

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motivation to select the presently claimed heterocyclic oxidation bases for use in Aaslyng's composition.

Finally, in order to reject dependent claim 40, the Examiner argues that it would have been obvious to optimize the amount of the at least one laccase-type enzyme based on the teachings of Aaslyng. (Office Action, p. 4.) However, this argument is irrelevant, as the Examiner has provided no evidence of a motivation or suggestion to modify Aaslyng in the first place by incorporating de la Mettrie's heterocyclic oxidation bases and couplers.

For at least the foregoing reasons, the Examiner has failed to establish a *prima facie* case of obviousness. Reconsideration and withdrawal of the rejection are respectfully requested.

III. CONCLUSION

In view of the foregoing remarks, Applicants respectfully request the reconsideration of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
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Dated: June 12, 2003

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Enclosure

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